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AMSAT NEWS SERVICE
ANS-365

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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ANS-365 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 344.01
 From AMSAT HQ KENSINGTON, MD.
DATE December 31, 2017
To All RADIO AMATEURS
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GOLF-TEE $15,000 Matching Funds President’s Challenge

In October 2017 AMSAT announced the GOLF (Greater Orbit, Larger Footprint) program. The first project of the GOLF program is a technology demonstrator named GOLF-TEE (Technology Evaluation Environment). The design is a 3U CubeSat with deployable solar panels, ADAC (attitude determination and control), Software Defined Radio (SDR) Transponder, and a Vanderbilt University Low Energy Proton (LEP) experiment. Now is the time to begin work on the GOLF-TEE Project.

At the end of 2017, AMSAT has generous offers from two AMSAT Past Presidents for matching funds up to $15,000 for those that contribute to the GOLF-TEE campaign at: https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=STK27W4G9RMLC (Shortened URL without linewrap: http://tinyurl.com/ANS-365-PayPal-GOLF-Donation) between now and February 15th. Make your donation twice as valuable by taking advantage of this opportunity and contributing, and help AMSAT fund the launch of the next series of satellites of the GOLF program. There are also donate buttons for GOLF-TEE on the AMSAT website. Planning is for a launch in 2019.

Donations of $100 and $1,000 or more will be eligible for a special AMSAT GOLF premium. (Both premiums are currently being designed, so please be patient awaiting delivery.)

AMSAT is a 501-(c)-(3) not-for-profit educational and scientific organization of amateur radio operators whose purpose is to design, construct, launch, and operate satellites in space and to provide the support needed to encourage amateurs to utilize these resources. Please consider a tax-deductible contribution to AMSAT to help underwrite the development and launch expenses of our GOLF satellite program.

Donors wishing to provide additional matching funds please contact Joe Spier, K6WAO at k6wao(a)amsat.org.

(ANS thanks AMSAT-NA for the above information)

New Year's Weekend - AMSAT CW Activity Day 2018 In Memory Of G3IOR

You are cordially invited to participate in AMSAT's second annual CW Activity Day. It will be held from 0001 to 2400 UTC on January 1, 2018. This year's event is dedicated to the memory of Pat Gowen, G3IOR.

The rules are very simple: there aren't any. Just operate CW through any amateur radio satellite. Straight keys and "bugs" are encouraged, but not required. The important thing is to get on the air and have fun.

[ANS thanks Ray W2RS for the above information]

New Year's Weekend - AO73 / FUNcube-1 Happy Holiday Mode

AO73/FUNcube-1 is now operating in full time transponder mode and will continue in this mode until the evening of Wednesday 3rd January 2018.

Please enjoy the transponder during this happy holiday period!

Season's greetings from the whole FUNcube team.

[ANS thanks Graham, G3VZV for the above information]

New Year's Weekend - AMSAT Office Closed For Holiday

The AMSAT Office is closed from Friday, Dec 22 - Friday, Jan 5th. Please check the website (amsat.org) for information.

HAPPY HOLIDAYS and a VERY HAPPY HEALTHY NEW YEAR.

[ANS thanks Martha for the above information

KB1LQC's Faraday RF Blog Describes the Development of the AO-91 MPPT

Bryce Salmi, KB1LQC, writes about the development and successful launch and deployment of the Maximum Power Point Tracker (MPPT) designed by himself and Brent Salmi, KB1LQD. The design started as a senior design project at the Rochester Institute of Technology.

Bryce wrote, "The story of the Fox-1 MPPT is a great example of how amateur radio is what you want it to be. The MPPT symbolizes the vast nature of amateur radio which spans far beyond just communicating over the airwaves."

Continuing, "The Maximum Power Point Tracker has no radio inside of it yet it is profoundly amateur radio. It’s sole purpose is to enable scientific and ham radio payloads on-board the spacecraft. Amateur radio is about learning, having fun, and applying technology to accomplish great things. Let’s explore this side of the hobby!"

Follow the rest of the blog, the MPPT, with photos and videos at:
https://faradayrf.com/ham-radio-is-about-more-than-radios-amsat/

[ANS thanks Bryce Salmi, KB1LQC for the above information]

Fernando, NP4JV Completes Satellite Contact With All 488 CONUS Grids

Congratulations are due to Fernando, NP4JV, for completing satellite contacts with all 488 Maidenhead grids in the continental United States. His December 28, 2017 contact with Ken, VE3HLS in grid FN65 on XW-2B completed Fernando's quest. Ken was mobile on his trip to to New Brunswick. The satellite was at 2º elevation when the contact was completed.

Fernando wrote on amsat-bb, "I would like to publicly express my gratitude to Ken for going out of his way to help bring down the "white whale", and last grid needed in the 488 CONUS."

Continuing, "I want to also thank all the satellite operators that made this possible. All credit goes to them! Extra thanks to all those who travelled and helped with multiple grid squares. This has been a fun and exciting 2 years and 3 months of operating Ham Radio Satellites."

Fernando compiled a list of the stations contacted which can found on the archived copy of his original posting:
http://www.amsat.org/pipermail/amsat-bb/2017-December/066053.html

[ANS thanks and congratulates Fernando, NP4JV for the above information]

KA9Q AMSAT Archive Updated With Phase 3-B/Oscar-10 Documents

Phil Karn, KA9Q, wrote on amsat-bb that he has been scanning and

categorizing his stacks of paper files. He's been working on old AMSAT documents from the early 1980s. Phil says, "I have a good pile of stuff on Phase 3-B/Oscar-10 that might be of interest to the old-timers among you (and maybe of archeological interest to others)".

He will be placing these documents in raw form on his personal website. There's no index or HTML framing at the moment, but hopefully the file names are at least slightly descriptive.

Phil advises to watch: http://www.ka9q.net/amsat/Oscar-10
Phil's AMSAT Newsletter archives can be accessed on his website:
http://www.ka9q.net/newsletters.html

[ANS thanks Phil Karn, KA9Q for the above information]

Volunteer Opportunity - Openings for News Service Rotating Editor

If you're open to volunteering to help AMSAT this is your chance! We have openings for a few volunteers willing to help as an AMSAT News Service editor.

Our editors work on a rotating schedule with each taking turns as the current week's news editor. Using input received from members, the amateur radio community, officers, plus our other editors your job is to assemble the AMSAT News Service bulletin for your week. (Template is provided to help you format the message.)

If you can help contact our Senior News Service Editor, Lee McLamb, KT4TZ via his e-mail: kt4tz(a)amsat.org

[ANS thanks the AMSAT News Service for the above information]

The ARRL International Grid Chase Includes Satellite Contacts

Beginning at 0000 UTC on January 1, 2018, the ARRL International Grid Chase kicks off. The objective is simple: Work stations in as many grid squares as possible and upload your log data to ARRL's Logbook of The World. Visit the ARRL Grid Chase web page at: http://www.arrl.org/international-grid-chase-2018

(If you are not currently registered with Logbook of The World, this is a good reason to get started. Go to https://lotw.arrl.org/lotw-help/getting-started/. Registration and uploading are free.)

Every new grid square contact confirmed through Logbook of The World counts toward your monthly total, which begins when you ring in the New Year.

Just turn on your radio and start calling "CQ Grid Chase," or listen for others doing the same. Make the contact, enter it into your log, and you're on to your next QSO.

At the end of each month, your totals on the Grid Chase leader board will reset to zero. Fear not, though. The online scoring system will maintain your monthly totals for a grand total at the end of the year, when an annual summary will be released and awards given to top finishers in various categories.

The ARRL International Grid Chase is open to all amateurs, regardless of location or license class. Any operating mode is eligible as well as every band, except 60 meters. You'll find the complete rules at www.arrl.org/aigc2018.

Any contact can count for your Chase score; it doesn't have to involve an exchange of grid squares. As long as other operators participate with Logbook of The World, you'll get the credit automatically when they upload their logs. This means that contest contacts will count, as will contacts with special-event stations, or any other on-air activity. As long as stations upload their logs to Logbook of The World, you're good.

Satellite contacts count. Contacts made through earthbound repeaters do not count for the Grid Chase, but repeaters in outer space are the exception. This includes all low-orbiting satellites that support CW, SSB, and even FM contacts.

[ANS thanks the ARRL for the above information]

NASA/JPL is Testing Combined Deployable Solar Cell & Antenna Panel

After cargo ship Cygnus OA-8E (SS Gene Cernan) was unberthed from the Unity module of the ISS on December 5 it continued in orbit to release cubesats and perform additional testing. On December 6 Cygnus raised its orbit from 402 x 407 km to 447 x 456 km. It then deployed 14 cubesats on December 6 and 7. Cygnus was deorbited on December 18, with entry over the South Pacific.

One of the cubesats deployed from Cygnus was the NASA/JPL Integrated Solar Array and Reflectarray Antenna (ISARA) mission to demonstrate a reflectarray antenna that increases downlink data rates for CubeSats from the existing baseline rate of 9.6 kilobits per second (kbps) to more than 100 megabits per second (Mbps).

The reflectarray antenna consists of three panels, electrically tied together through hinges, which have an array of printed circuit board patches on them. The size of the patches are adjusted so that the phase of the reflected feed illumination collimates the radiation in much the same way a parabolic dish reflector would. Unlike a parabolic dish, however, the reflectarray panels are flat, which enables them to be folded down against the CubeSat. On the opposite side of the printed reflectarray antenna, solar cells have been added.

Additional information and illustration can be found on the web:
Jet Propulsion Labs ISARA page:
https://www.jpl.nasa.gov/cubesat/missions/isara.php
NASA ISARA page:
http://tinyurl.com/ANS-365-NASA-ISARA-Project
NASA ISARA PDF data sheet
http://tinyurl.com/ANS-365-ISARA-PDF

[ANS thanks Jonathan's Space Report No. 743, NASA, and Jet Propulsion Labs for the above information]

Philippines’ Diwata-2 Microsat to Include Amateur Radio Transponder

The IARU frequency coordination pages show that the Diwata-2 team have applied for amateur radio frequency coordination:

http://www.amsatuk.me.uk/iaru/formal_detail.php?serialnum=593

Diwata-2 is the Philippines' second microsatellite designed and developed by Filipino scientists and engineers under the PHL-Microsat Program. They describe their program at:

http://phl-microsat.upd.edu.ph/diwata2

Diwata-2 is a 50x50x50 cm microsatellite with estimated mass of 50kg. It features two deployable systems - solar array panels and amateur radio antennas.

Diwata-2 will carry optical payloads that will support the following objectives:
+ Determining the extent of damages from disasters
+ Monitoring natural and cultural heritage sites
+ Monitoring changes in vegetation
+ Observing cloud patterns and weather disturbances

These paylaods will use non-amateur S and X Band frequencies. In addition to these optical payloads, Diwata-2 will also carry an amateur radio unit. This payload is intended to promote awareness and interest in amateur radios and satellite technology in the country. It is also intends to provide an alternative means of communication at times of disasters and emergencies.

Diwata-2 is proposing a U/V FM transponder with APRS and CW beacon. Planning a launch from Tanegashima, Japan into a 613km polar orbit in Q2 2018.

[ANS thanks the IARU and the PHL-Microsat Program for the above information]

IARU Coordination Completed for DreamSat for ISS Deployment in 2019

The Dream Satellite Project plans to develop and deploy a 1U cubesat from the ISS in 2019. The structure and bus system of this satellite consists of the OPUSAT-Kit, which is developed based on Osaka Prefecture University's OPUSAT CubeSat, manufactured by NISSIN Co., Ltd.

The Dream Satellite Project will develop the mission system:
+ Provide amateur radio mailbox service
+ Provide QSL service
+ Store and forward message operations

A downlink at 145.860 MHz and UHF uplink have been coordinated. DreamSat has not yet announced their UHF uplink frequency. Data formats include CW, AFSK 1k2 packet and GMSK 9k6 packet.

The DreamSat webpage: http://faspia.or.jp/
Planned for deployment from the ISS during Q1 2019.

The IARU coordination information can be viewed at:
http://www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=590

[ANS thanks the IARU and Katsuya Shibata, JJ1GPJ for the above information]

Satellite Shorts From All Over

+ Bryce, KB1LQC, at faradayrf.com and AMSAT volunteer designer has a new entry in his blog https://faradayrf.com/antenna-every-pot/ Bryce discusses the effects of ITAR over the years and shows a really neat segment from a 1996 show which aired on the Discovery network about the construction of antennas for AO-40. This is quite a find ... you're going to like this one folks ...

+ The U.S. National Academies of Sciences, Engineering, and Medicine has published a document on Agenda Items of Interest to the Science Services at the World Radiocommunication Conference 2019. The document addresses potential threats to the Radio Astronomy Service and Earth Exploration-Satellite Service. (A word search of the document does not reveal specific menition of amateur radio or amateur satellite.) Among the many frequency ranges mentioned are 45 MHz, 24 GHz, 47 GHz. Download document as "Guest" at: https://www.nap.edu/download/24899 (via W4ART and Southgate)

+ Pierros Papadeas, SV1QVE gave this presentation on December 29 about the LibreSpace_Fnd UPSat Open Source satellite to the Chaos Communication Congress in Leipzig: https://www.youtube.com/watch?v=boZRB4Qpg9s Nikos Roussos gives an overview of the LibreSpace_Fnd SatNOGS project, a network of satellite ground station around the world: https://www.youtube.com/watch?v=KiMXW6URg0U

+ How Many New Year’s Eves Will NOAA’s Satellites Celebrate? http://tinyurl.com/ANS-365-NOAA-NewYear

+ An ARISS School Contact with the Higher National School of Computer Science and Systems Analysis (ENSIAS), Rabat, Morocco, Wed 2018-01-03 13:52:42 is planned to be streamed on-line at: https://www.youtube.com/channel/UCVrHxxZ5pCvF-6I2O1-wgqQ/live

+ Peter Parker, VK3YE, has published two excellent introductions to amateur satellites videos. Peter describes his two-part video demonstration as, "A new amateur satellite has just gone up and it's super easy to work. You just need a pair of handhelds on 2m & 70cm FM. Watch these videos to find out how to make contacts through AO91 with equipment you probably already have." Part 1 - https://youtu.be/astteV2umOg Part 2 - https://youtu.be/XNB7Nc4HFYs

+ 6O6O from Somalia - Operators Ken, LA7GIA and Adrian, KO8SCA will be active as 6O6O from Somalia between January 3-16th, 2018. This will be an HF DXpedition but they invite amateur radio operators worldwide to participate in a humanitarian portion of their trip. Both Ken and Adrian will pay for all the DXpedition expenses. All money raised during the DXpedition will go to the not-for-profit Doctors Without Borders. They have also set up a dedicated PayPal address for these donations 6o6o(a)la7gia.com. Closing date for donations is February 1st, 2018, when donations will be wire transferred to Doctors Without Borders.

+ Visit https://www.smallsat.org/ to find information on the 2018 SmallSat Conference August 4-9, 2018 at Utah State University. The theme this year is "Delivering Mission Success".

+ Terry, ZL2BAC, posted plans and photos of his 3 element 2M yagi antenna he made from old TV antenna parts in his junk box. Terry wrote, "It seems to work well on AO-91. If anyone is interested, see the details at:" http://tinyurl.com/ANS-365-ZL2BAC-Antenna

+ The AMSAT Station and Operating Hints page has been updated. 1) The Fox Operating Guide has been updated for 2018. This is

in color, designed to print two-sided. A low-resolution
PDF for e-mailing or screen viewing; and, a high-resolution
PDF is available for high quality printing.
2) A copy of the I8CVS Antenna Polarization Switching article
from the AMSAT Journal was added after many expressed interest
in obtaining a copy.
See: https://www.amsat.org/station-and-operating-hints/

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Happy New Year,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM
k9jkm at amsat dot org